

SPECIFIC GUIDANCE FOR RESPONDING TO THE ROSS-98 NRA

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C.1 Introduction

C.1.1 General Provisions and Policies

- *Relationship of Appendices B and C.* The material in Appendix C augments and supplements the material in Appendix B of this NRA. In case of conflict, the material in Appendix C takes precedence.
- *Uniqueness of ROSS-98 NRA.* This NRA is the only one that will be issued in Calendar Year 1998 by the NASA Office of Space Science (OSS) to solicit investigations for the science program elements listed in Table 1 of the prefatory summary letter of this NRA and individually discussed in detail in Appendix A. For each program element, an OSS Discipline Scientist is identified as a point of contact for further information.
- *Availability of Financial Resources for Selections through this NRA.* Proposals for a few of the science program elements covered by this NRA are being solicited for the first time, and so the entire budgets for those elements are open for competition. However, for most of the program elements, proposals have been solicited many times in the last decade, and investigations have been funded in accordance with one of two budget management arrangements (in either case, see the program element(s) of interest for further details):
 - Some of these programs carry a distribution of NASA research grants and contracts (hereafter collectively called awards) that have periods of performance from one to three years and for which new proposals are solicited every year. In these cases, typically between one-quarter and one-half of the total budget for that program element will be available each year to fund new awards due to the expiration of previous awards and/or the availability of new, additional resources.
 - Conversely, a smaller number of program elements completely subscribe their budgets with periodic selections of multiple year awards of uniform duration (typically three to five years). In these cases, the program element budgets are either fully committed because of these multiple year awards or are fully open for competition for new awards having an identical period of performance.
- *Unrestricted Freedom to Propose to this NRA.* NASA OSS welcomes proposals in response to this NRA from all qualified proposers. Participation in this program is open to all categories of U.S. and non-U.S. organizations, including educational institutions, industry, nonprofit institutions, NASA Centers, and other Government agencies. Historically Black Colleges and Universities (HBCU's), other minority educational institutions, and small businesses and organizations owned and controlled by socially and economically disadvantaged individuals or women are particularly encouraged to apply.

In accordance with Federal statutes and NASA policy, no eligible applicant shall be excluded from participation in, denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NASA on the grounds of race, color, creed, age, sex, national origin, or disability.

- *Opportunity to Propose Educational/Public Outreach Activities.* Educational/Public Outreach (E/PO) activities are now considered vital and integral parts of all NASA space science missions and research programs. Therefore, NASA OSS encourages proposers to this NRA to submit an E/PO proposal as a supplement to their research proposal in accordance with the guidelines given in Appendix A.5.1. Note that originality is not a criterion for such E/PO tasks; rather the important factor is that a tenable task of merit be proposed. Additionally, any Principal Investigator already holding an existing multiple year OSS research award having a period of performance that extends into FY 1999 and that can serve as a “parent proposal” is encouraged to propose an E/PO supplement.

- *Anticipated Level of Competition for Selection.* Regardless of the budgets that are indicated as available in Appendix A for the various program elements, prospective proposers are advised that all of these programs have traditionally been extremely competitive. In the last several years, typically as few as one out of four to five proposals have been selected for funding.

- *Public Access to Data.* As a matter of NASA policy, all data taken in the performance of a NASA research award are considered to be public domain. In addition, NASA may judge that new data obtained through an investigation selected through this NRA may be of value to the science community at large. If so, NASA reserves the right to direct that these data be deposited in an approved public data archive and, if so, will negotiate appropriate funding to enable the reduction and calibration of the data into a format amenable for use by peer scientists.

- *NASA-Provided Data and Computational Infrastructure.* OSS provides data and computational infrastructure to support its research community. Information on current science data centers and services can be found on the World Wide Web at <http://www.hq.nasa.gov/office/oss/ssds/>. Any need for high performance computing resources for the proposed research should be explicitly described in the proposal, including the computing system, location, and an estimate of the amount of computing time needed.

NASA high performance computing resources may be made available to successful investigations from facilities at either the Jet Propulsion Laboratory (JPL) and NASA Goddard Space Flight Center (GSFC):

- Resources at the JPL include a Cray J-90 system with a peak speed of 24 GFLOP's and a 256 processor Hewlett-Packard Exemplar parallel computer with a peak speed of 184 GFLOP's. For more information about JPL resources,

contact Mr. Larry Eversole at telephone (818) 353-2786, or E-mail at <eversole@galaxy.jpl.nasa.gov>.

- High performance computing resources at GSFC include a Cray J-90 system with a peak speed of 19.2 GFLOP's and a 512 processor Cray T3E parallel computer with a peak speed of 305 GFLOP's. More information is available on the World Wide Web at <<http://nccsinfo.gsfc.nasa.gov/NCCS>> and <<http://nccsinfo.gsfc.nasa.gov/ESS>>.

C.1.2 Types of Proposing Institutions

NASA OSS accepts proposals in response to its NRA's from all types of U.S. and non-U.S. institutions (proposals from non-U.S. institutions should adhere to the provision of Section 4 of this Appendix). As an aid to NASA in deciding on the appropriate funding instrument in the event that the proposal is selected for funding, one of the categories listed below must be indicated at the appropriate line on the *Cover Page* (see Section 5.3 of this Appendix):

- *Educational institution* -- A university or two- and four-year college (including a U.S. community college) accredited to confer degrees beyond that of the K-12 grade levels (all such institutions are considered by NASA as nonprofit).
- *Nonprofit, nonacademic organization* -- A private or Government supported research laboratory, university consortium, museum, observatory, or similar organization that supports advanced research but whose principal charter is not for training of students.
- *Commercial organization* -- An organization of any size that operates for profit (fee basis) and with appropriate capabilities and interests to conduct basic research in science.
- *NASA Center* -- All NASA field Centers and the Jet Propulsion Laboratory.
- *Other Federal Agency* -- Any non-NASA, U.S. Federal Executive agency or Federally Funded Research and Development Center (FFRDC) sponsored by a Federal agency.
- *Unaffiliated U.S. resident* -- Any person residing in the U.S., whether a U.S. citizen or resident alien, who has the capabilities and access to facilities for carrying out the proposed project and who, if selected, agrees to fiscal arrangements that, in NASA's opinion, ensures responsible management of appropriated Federal funds.
- *Non-U.S. Organizations* -- Institutions outside the U.S. that propose on the basis of a policy of no exchange of funds; consult Section 4 of this Appendix for specific details.

C.1.3 Proposal Personnel

Every organization submitting a proposal in response to this NRA must designate a single *Principal Investigator* (PI) who will be responsible for the quality and direction of the entire proposed investigation and for the use of all awarded funds. NASA does not accept the designation of a “Co-PI.”

NASA strongly encourages proposers to identify only the most critically important personnel to aid in the execution of their proposals. Should such personnel be required, *Co-Investigators* (Co-I’s) may be identified who are critical for the successful completion of an investigation through the contribution of unique expertise and/or capabilities, and who serve under the direction of the PI whether or not they receive compensation directly under the award. A Co-I must have a well-defined role in the investigation that is explicitly defined in the Management section of the proposal (see Section 5.3 below). In addition, for all proposals submitted in response to any of the program elements in this NRA, evidence of commitment of a Co-I to participate in the proposed investigation is now required by way of a brief letter from him/her even if they are from the same institution as that of the PI (see Section 5.3 below).

Note: There are two informal subcategories of Co-I’s that a proposal may identify in its Management section (see Section 5.3 below) as appropriate:

A Co-I may be designated as the *Science PI* for those cases where the proposing institution does not permit that individual to formally serve as the PI as defined above (e.g., nontenure faculty, research associates, and/or postdoctoral personnel). In such a case, the Science PI will be understood by NASA to be in charge of the scientific direction of the proposed work, although the formally designated PI is still held responsible for the overall direction of the effort and use of funds.

An *Institutional PI* is a Co-I at an institution other than the PI’s that is making a major contribution to the proposal (e.g., a substantial portion of an experimental investigation) and who serves as the point of contact at the Co-I’s institution. (Note: In some cases NASA may elect to provide an award directly to that Co-I institution with the Institutional PI serving as the “PI” for what otherwise would be a subcontract from the proposing PI institution. However, in this case, the proposal’s designated PI is still held responsible by NASA for the overall scientific direction of the proposed effort.)

Finally, proposals may also identify *Collaborators* who are individuals that are less critical to the overall proposal than a Co-I but who are committed to provide a focused though unfunded contribution to a specific task. As for Co-I’s noted above, proposals submitted in response to this NRA must include a brief letter of commitment from each Collaborator that describes their specific, intended contribution to the investigation.

C.1.4 Proposal Evaluation

Although OSS secures scientific and technical evaluations from appropriately qualified peers of the proposers, proposers are expected to provide sufficient detail to enable evaluation by persons who are knowledgeable of but not necessarily specialists in the proposed research. As a general rule, the evaluation criteria in Appendix B, part (i), as amended below, applies to all program elements in this NRA, although they may be augmented by additional specific factors for each element as provided in Appendix A:

(i) Evaluation Factors.

(1) Unless otherwise specified in the NRA, the principal criteria (in descending order of importance) that apply in evaluating a proposal are its intrinsic merit, its relevance to NASA's objectives, and its cost.

(2) Evaluation of intrinsic merit includes consideration of the following factors listed in approximate order of decreasing importance:

- The overall scientific and/or technical merit of the proposal and/or unique and innovative methods, approaches, concepts, or advanced technologies demonstrated by the proposal, and the potential impact of the proposed research to its field;
- The qualifications, capabilities, and experience of the proposing Principal Investigator and all other personnel who are proposing to help achieve the proposal's objectives;
- The proposing institution's capabilities, related experience, facilities, techniques, or unique contributions of these that are integral factors for achieving the proposal objectives; and
- The overall standing of the proposal against the known state of the art.

(3) Relevance to NASA's objectives shall mean relevance to the specific objectives and goals given for the program element as described in this NRA for which the proposal is submitted, as well as more generally to the NASA OSS science themes and goals as defined in the most current OSS strategy documents.

(4) Evaluation of the cost of a proposed effort shall include the realism and reasonableness of the proposed cost, and the comparison of that proposed cost to available funds.

C.1.5 Proposal Selection and Implementation

Following peer evaluation, the cognizant Discipline Scientist will further review the scientifically and technologically top rated proposals against the programmatic objectives, program balance, and financial resources available for that program element. Based on the entirety of these factors, including judgment of the comparison of the scope and

importance of the proposed investigation to its cost, the Discipline Scientist then will present a recommendation for selection to the NASA Selecting Official (identified in this NRA's covering summary letter). The Selecting Official will select for funding those proposals deemed worthy as judged against all of the evaluation criteria and for which financial resources are available. The Selecting Official will also decide on the selection of Education/Public Outreach (E/PO) proposals of merit that are associated with those proposals being considered for selection. Note that an E/PO proposal of merit will also be used as an additional factor to discriminate between proposals of otherwise equal merits.

Each proposer will be notified by postal or electronic mail of their selection or nonselection and offered a debriefing to explain that decision. Note that NASA reserves the right to offer selection of only a portion of a proposed investigation; in such a case the proposer will be given the opportunity to accept or decline the offer. Those recommended for selection will be informed of the recommended amount of their award and that their organization will be contacted by a NASA Procurement Office to arrange for an appropriate funding instrument (normally a grant or contract). In all cases, awards are made to the proposing institution, not directly to the proposal's PI. Note that no financial commitment on the part of NASA or the Government may be inferred from any communication, even if in writing, from the NASA Discipline Scientist or Selecting Official. Only a NASA Procurement Office can make financial commitments, obligations, or awards on behalf of the Agency and authorize the expenditure of funds.

C.2 Notice of Intent to Propose

In order to plan for a timely and efficient peer review process, *Notices of Intent* (NOI's) to propose are requested by the respective deadlines in Table 1 for all of the program elements solicited in this NRA. NASA understands that the submission of a NOI is not a commitment to submit a proposal, nor is information contained therein considered binding on the submitter. NOI's are to be submitted electronically by entering the requested information through the World Wide Web site identified in each program element in Appendix A (a point of contact is also provided for anyone without access to the Web or who experiences difficulty in using the specified site). As a rule, the respective NOI Web sites will request at least the following information:

- reference to this NRA by its alpha-numeric identifier (this may be included on the Web site template);
- the program element from Appendix A for which a proposal may be submitted (the Web site may provide a menu from which the appropriate element may be selected);
- the Principal Investigator's name, physical mailing address, phone number, and E-mail address;

- the name(s) and institution(s) of any Co-Investigator(s) known by the NOI due date;
- a YES/NO indication of the intent to submit an E/PO proposal;
- a descriptive title of the intended investigation; and,
- a brief description of the investigation to be proposed.

Additional information may be requested as specified in the program element descriptions in Appendix A. A separate NOI must be submitted for each intended proposal. Note that this NOI may take the form of being the preliminary version of the proposal *Cover Page/Proposal Summary* (see Section 5.3 below). If so, the Web site will provide a password to the user for future use in updating this information for the final *Cover Page/Proposal Summary* as the deadline for submission of the final proposal approaches (see further discussion in Section C.5.3 below).

C.3 “Renewal” Proposals

[Appendix B.(d)]

The term “renewal proposal” has had ambiguous meanings in previous OSS NRA’s, used to mean both a proposal that seeks to extend to its next logical step an existing NASA research award whose period of performance is concluding, as well as the request for the additional funding needed to complete a selected multiple year award. To avoid this ambiguity, OSS wishes to discontinue use of this term. Instead, all proposals in response to this OSS NRA will be considered “new” regardless of their previous funding history, whereas the continued funding of a multiple year award will be referred to as its “annual funding allotment.”

Directions for the submission of the progress reports that are necessary for an annual funding allotment may be obtained directly from the relevant Discipline Scientist, although a few of the program elements in this NRA may specify submission of such reports by a firm deadline. Refer to the program element of interest in Appendix A.

To allow their identification and assessment of achievements, the following information must be provided by proposers who seek to extend an existing research activity relevant to one of the program elements of this NRA and for which NASA funding will expire in Fiscal Year 1998: (i) the existing NASA grant or contract number must be entered on the proposal *Cover Page*; (ii) a summary description of accomplishments and citations to published papers must be included in the *Proposal Summary*; and (iii) appropriate expanded material must be included in the *Scientific/Technical/Management* section. (see Section 5.3 below for detailed discussions of all of these proposal elements). Such follow-on proposals must otherwise fully comply with all guidelines for preparation, content, and submission as outlined in this NRA, and they will be reviewed on an equal basis with all other submitted proposals. If such a proposal is selected, NASA reserves the right to fund the investigation either by amendment of the existing award or by a totally new award. In either case, the starting date of the new award will follow the

expiration of the existing award, whereas new awards for each program element are expected to start approximately six months after the proposal due date for that element.

C.4 Guidelines for International Participation

NASA welcomes proposals from institutions from outside the U.S., as well as proposals from U.S. institutions that include collaboration with Co-Investigators at non-U.S. institutions. In either case, however, investigators working outside the U.S. are not eligible for funding from NASA. Therefore, proposals from non-U.S. institutions should not include a cost plan unless the proposal involves a Co-Investigator working in the U.S., in which case a budget for just that participation must be included. Proposals from non-U.S. institutions, and U.S. proposals that include non-U.S. participation, must be endorsed by the government agency or sponsoring institution in that country from which the non-U.S. participant is proposing. Such endorsement should indicate that the proposal merits careful consideration by NASA, and that if the proposal is selected, sufficient funds will be made available to undertake the activity as proposed.

In addition to sending the specified number of copies of the proposal to the address designated in this NRA, one copy of the proposal, along with a Letter of Endorsement from the sponsoring non-U.S. agency, must be forwarded to:

Ms. Bettye Jones
NRA 98-OSS-03
Space Science and Aeronautics Division
Code IS
NASA Headquarters
Washington, DC 20546-0001
USA

All non-U.S. proposals must be typewritten in English and conform to all other standards for format and content specified in this NRA and will undergo the same evaluation and selection process as those originating in the U.S. All proposals must be received before the established proposal due date; those received after the closing date will be treated in accordance with NASA's standard policy for late proposals (see Appendix B). The sponsoring non-U.S. agencies may, in exceptional situations, forward a proposal to NASA without endorsement if endorsement is not possible before the announced closing date. In such cases, however, NASA's Space Science and Aeronautics Division should be advised when a decision on endorsement can be expected.

Successful and unsuccessful non-U.S. proposers will be contacted directly by the NASA Research Program Management Division concerning the selection or nonselection for their proposals, and copies of these letters will also be sent to the sponsoring organization. Should a non-U.S. proposal or a U.S. proposal with non-U.S. participation be selected,

NASA's Space Science and Aeronautics Division will arrange with the non-U.S. sponsoring organization for the proposed participation on a no-exchange-of-funds basis, in which NASA and the non-U.S. sponsoring organization will each bear the cost of discharging their respective responsibilities. Depending on the nature and extent of the proposed cooperation, this arrangement will entail a letter of notification by NASA and either an exchange of letters between NASA and the sponsoring organization, or a Memorandum of Understanding (MOU).

C.5 Guidelines for Preparation of Proposals

C.5.1 Standard Default Formats for Proposals

Unless directed otherwise by the program element in Appendix A, the standard, default formats for all proposals submitted in response to this NRA are as follows:

- Typewritten English text using an easily read font having no more than ~15 characters per inch on white, 8.5x11 inch paper (or A4 stock for non-U.S. proposals), in single or double column format with at least one inch (2.5 cm) margins, and double-sided printing preferred but not required.
- Bound only with metal staples to facilitate recycling (i.e., no cardboard or plastic covers, or permanent binders), with the original copy bound in a manner that allows easy disassembly should NASA need to make additional copies.
- No fold out pages, colored illustrations, or photographs unless critical for the unique display of important proposal data.
- No material submitted on any type of electronic media, nor reference to sites on the World Wide Web for material needed to complete or review the proposal.
- Use of only metric and standard astronomical units.
- A limit of 15 pages for the *Scientific/Technical/Management Section* (see further below), including references and figures, where each side of a sheet containing text or illustration counts as a page, and any “n-page” fold-out counts as n-pages.

C.5.2 Checklist For Proposal Preparation

All proposals are to include the following materials in the order and using the titles as given. Details for each item are given in the same order in Section C.5.3.

PRESUBMISSION ACTIVITIES

- *Notice of Intent to Propose* - electronically submitted to the World Wide Web site given in the program elements in Appendix A and by the dates given in Table 1 of the cover summary letter of this NRA.

- *Cover Page/Proposal Summary* - electronically submitted to the World Wide Web site given in the program elements in Appendix A and according to the directions below in this section, and in time to procure original signatures on a printed hard copy as required for submission with the copies of the proposal itself by the deadlines in Table 1 of the cover letter.

CONSTITUENT PARTS (REQUIRED AND OPTIONAL) OF A PROPOSAL,
IN ORDER OF ASSEMBLY

	<u>Page Limits</u>
• <u>MAIN PROPOSAL</u>	
___ <i>Cover Page/Proposal Summary</i>	2-3
___ <i>Summary Of Personnel Commitments and Costs</i>	1
___ <i>Budget Summary</i> (one for each year of proposed effort)	1-5, as req'd
___ <i>Table Of Contents</i> (optional)	1
___ <i>Scientific / Technical / Management Section</i>	≤ 15
___ <i>Facilities And Equipment</i>	≤ 2 , as needed
___ <i>Education/Public Outreach (E/PO) Proposal</i> (optional)	≤ 5
• <u>ANCILLARY INFORMATION:</u>	
___ <i>Curriculum Vitae</i> (optional for Co-I's)	≤ 3 for PI
___ <i>Current and Pending Support</i>	as req'd
___ <i>Letters of Co-I and Collaborator Commitments</i>	as req'd
___ <i>Reprints/Preprints</i> (optional; ≤ 2 if relevant to proposal)	N/A
___ <i>Budget Details</i>	as req'd
___ <i>Institutional Budget</i> (optional)	N/A

SUBMISSION ACTIVITIES

- ___ *Cover Page/Proposal Summary* - print out final and complete version from specified Web site in time to secure the Principal Investigator and Authorizing Institution signatures, and to produce the required number of hard copies to be submitted (originally signed *Cover Page/Proposal Summary* to preface original of proposal).
- ___ Provide for delivery of the specified number of hard copies of the proposal to the correct address by close of the normal business day on the specific Due Date (see Table 1 of the summary cover letter and the relevant program element in Appendix A of this NRA).

C.5.3 Details of Proposal Contents

All proposals in response to this OSS NRA should be assembled with the following parts in the order listed. Proposals that omit any of these parts may be returned without review. The individual science program element descriptions in Appendix A may also ask for materials in addition to these items. For convenience, each of the items below is cross-referenced to the corresponding part of Appendix B of this NRA. Note that several parts of Appendix B are not cited but should also be considered for a complete understanding of all the policies and provisions for proposals solicited through this NRA.

- *Cover Page/Proposal Summary* [Appendix B.(c)(1) and (3)]

All proposals must be prefaced by an integrated *Cover Page/Proposal Summary* that contains important, required information (see below). This item is produced by first entering the requested information electronically through a World Wide Web site (specified for each program element described in Appendix A) and then printing out this form by the proposer (note: a point of contact is also identified for any proposer without access to the Web or who experiences difficulty in using the specified site). The printed copy of the electronically submitted form is then used to obtain original signatures of the PI and an official from the proposing institution to submit with the original copy of the proposal. In addition, reproductions of this original *Cover Page/Proposal Summary* are used to preface the required printed copies of the proposal.

Upon accessing the specified Web site, at least the following information for the *Cover Page* will be requested (note that the Web form for some of the individual program elements in Appendix A will request additional information):

- Alpha-numeric identifier of this NRA and full name of the NASA Research Announcement (note: these may already be included on the electronic form).
- Name of program element within this NRA to which the proposal is directed.
- Name and full physical, institutional mailing address of the proposing Principal Investigator, telephone and facsimile numbers, and E-mail address.
- An open block for the PI signature and date on the printed hard copy.
- Full, descriptive title of proposed investigation.
- NASA Grant or Contract Number of any current NASA award that the PI holds that is a logical predecessor of the newly proposed work.
- Names, institutional affiliations, and E-mail addresses of all Co-Investigators (note: all listed Co-I's must also be functionally identified in the proposal).
- The physical mailing address, telephone number, and E-mail address of the office of sponsored programs at the proposing institution.
- Institutional endorsement, including the name and title of the Authorizing Official, name of proposing institution, and, for the hard copy submitted with proposal, a signature and date.

- Designation of the type of institution per the definitions in Section 1.2 above.
- A “Yes/No” indication whether an E/PO proposal is also submitted.
- The proposed costs both by year and for the total proposed period of performance.

A block of space (about one page in length) will be provided in the electronic *Cover Page/Proposal Summary* form for a self-contained *Proposal Summary* of the proposed research activity. The *Summary* is intended to provide background and perspective to the interested reader and, therefore, should include the following key information:

- A description of the key, central objectives of the proposed research in terms sufficient for a nonspecialist not familiar with the document to grasp its essence and a statement of methods proposed to accomplish those proposed objectives;
- The perceived significance of the proposed work to NASA OSS interests;
- If the proposed research is a continuation of work performed under a previous NASA award, a statement of accomplishments and citations to key published or in-press articles derived from that award; and
- If the proposal contains a Education/Public Outreach proposal, a two or three sentence summary of the intended activity.

NOTE: NASA intends to publish the proposal title, the PI name and institution, and the *Proposal Summary* of every selected investigation in a public data base. Therefore, the *Summary* should not include proprietary information that would preclude its unrestricted release (see also Appendix B, (a)(2) and (c)(2)).

Changes (such as whiteout or strikethrough) to the printed *Cover Page/Proposal Summary* are not permitted. Any needed changes to the information submitted electronically may only be made by editing the electronic submission by one of two ways, depending on the instructions of the Web page of the organization receiving the proposal: Either (i) directly on the Web by using the “Edit” option and the Proposal Number that was assigned when this form was first electronically submitted; or (ii) directly on the Web by using a unique password assigned along with the Confirmation Number when this form was first electronically submitted. In either case, after the final *Cover Page/Proposal Summary* has been electronically submitted, the proposer then prints the correct and final version for securing the necessary signatures.

Note two special features of this integrated *Cover Page/Proposal Summary*: (i) unlike previous OSS NRA’s, the authorizing institutional signature now also certifies that the proposing institution has read and is in compliance with the three required certifications printed in full at the end of this Appendix, and, therefore, it is not necessary to separately submit these certifications with the proposal; and (ii) electronic submission of only a *Cover Page/Proposal Summary* does not satisfy the deadline for proposal submission.

The required number of copies of the proposal, one with original signatures, must be received at the indicated address by the due date.

- *Summary of Personnel Commitments and Costs*

The proposal must contain a one page summary that shows, in simple tabular form, the intended work commitment for the PI and every Co-I of their work effort for the proposed investigation both in time (rounded to the nearest 0.1 Work Year) and salary (rounded to the nearest \$1K) for each year of the proposed period of performance.

- *Budget Summary* [Appendix B.(c)(8)]

Proposals must contain a *Budget Summary* (form given at end of this Appendix) for each year of the proposed effort filled out in accordance with the *Instructions for Budget Summary* on the page that follows it. Special attention is directed to the discussion of item 2.c. *Equipment* on the *Instructions* sheet regarding the proposed purchase of personal computers and/or commercially available software, both of which are considered to be “general purpose equipment.” In the event that a proposal is selected for award, failure to adequately address the provisions of the instructions for item 2.c will require that the NASA awards office contact the proposing institution for the required information, which may delay the award until the purchase is either justified as a direct charge for general purpose equipment or is rebudgeted as an indirect expense.

- *Table of Contents*

A one page *Table of Contents* is optional but desirable. It does not count against the page limit for the *Scientific/Technical/Management Section* discussed below.

- *Scientific/Technical/Management. Section* [Appendix B.(c)(4), (c)(5), and (c)(6)]

This *Section* is the heart of a proposal and should cover the following topics in the order given:

- The objectives and expected significance of the proposed research, including a complete description of any instruments or hardware proposed to be built in order to carry out the research (note: see also the next subsection below for the treatment of critical equipment needed for carrying out the proposed research);
- The technical approach and methodology to be employed in conducting the proposed research, including any special facilities of the proposing institution(s) and/or capabilities of the proposer(s) for carrying out the work;
- The perceived impact of the proposed work to the state of knowledge in the field and, if the proposal is a direct extension of an existing OSS award, how the proposed work is expected to build on and otherwise extend previous accomplishments;

- The relevance of the proposed work to past, present, and/or future NASA OSS programs and interests or to the specific objectives given in this NRA;
- An outline of the general plan of work, including anticipated key milestones for accomplishments and the management structure for the personnel involved; and
- A statement of the expected contribution by the PI and each Co-I identified on the proposal, whether or not they derive support from the proposed budget.

The *Scientific/Technical/Management Section* should contain references to citations in the main text and may contain illustrations that amplify and demonstrate key points in the main text of the proposal (including milestone schedules, if appropriate). Any illustrations should be of publication quality, sized for easy viewing, and have self-contained captions that do not uniquely contain critical proposal information.

- *Facilities and Equipment* [Appendix B.(c)(7)]

If appropriate, and not to exceed two pages in length, this section should describe any facilities (including any U.S. Government owned facilities) and/or major equipment critical to carrying out the proposed project that is already available or would need to be purchased in order to carry out the proposed investigation. In the latter case, these costs should be entered in the required proposal *Budget Summaries* and also should be described in accompanying budget details.

- *Education and Public Outreach (E/PO) Proposal* (optional) [Appendix A.5.1]

Proposals for E/PO efforts are encouraged as an addition to proposals submitted in response to this NRA. An E/PO Co-Investigator may be identified for this portion of the proposal who will carry the prime responsibility for completing the E/PO work (e.g., an appropriately qualified colleague from the PI institution, or some nearby educational institution such as a public school district, museum, planetarium, etc.). Note that a separate NASA OSS budget exists to fund such efforts, so the award of an E/PO grant will be in addition to the budget for the proposed “parent” research investigation by itself. Appendix A.5.1 contains further information about the criteria and submission procedures for this program.

- *Curriculum Vitae* [Appendix B.(c)(6)]

The PI must include a *Curriculum Vitae*, limited to three pages, that includes his/her professional experiences, positions, and a bibliography of publications relevant to the proposal. The proposal may also include a one page *Vitae* for each key Co-I.

- *Current and Pending Support*

[Appendix B.(c)(10)]

Information must be provided for all ongoing and pending projects and proposals that involve the proposing PI and any Co-I's who are expected to perform a major share of the proposed work. For each such individual, provide the following information,

- Project Title;
- Sponsoring agency or institution (including point of contact);
- Proposed period of performance and budget; and
- Commitment by PI in terms of Full Time Equivalent (FTE) Work Year, for each of the two categories of support awards:

A. Current Support (for any of the period that overlaps with the current proposal); and

B. Pending Support (including the current proposal).

In addition, provide the name of any other institution, including point of contact with telephone number, to which the proposal submitted to this NRA, or any part thereof, has been or will be submitted for consideration of funding. For such pending research, the PI's must notify the relevant Discipline Scientist immediately of any successful proposals that are awarded anytime after the proposal submission date until the time of selections.

- *Co-I and Collaborator Commitments*

A new feature of this ROSS NRA is the requirement that every Co-I and Collaborator identified as a participant in the proposal must submit a brief, signed letter of commitment that acknowledges his/her participation. In the case of more than one Co-I and/or Collaborator, a single, multiply-signed letter is preferred to minimize proposal size. In any case, each letter should be addressed to the PI, may be a facsimile, and is required even if the Co-I or Collaborator is from the PI's own institution. The text of this letter should contain the following, or approximately similar, language:

“I(we) acknowledge that I(we) am(are) identified by name as Co-Investigator(s) [or Collaborator(s)] to the investigation entitled “*name of proposal*” that is submitted by “*name of Principal Investigator*” to the ROSS-98 NASA Research Announcement, and that I(we) intend to carry out all responsibilities identified for me(us) in this proposal.”

- *Reprints/Preprints*

Up to two reprints and/or preprints for peer-reviewed publication that are considered critical to understanding and/or the background of the proposal may be appended. Nevertheless, note that reviewers will be asked to base their judgments of the merits of a proposal only on the *Scientific/Technical/Management Section*. Therefore, prospective proposers should ensure the self consistency and completeness of that *Section*.

- *Budget Details and Institutional Budget*

In addition to the *Budget Summaries* as discussed above and in accordance with the *Instructions for Budget Summary* given in Section 6 of this Appendix, the proposing institution must append at the end of the proposal sufficient details to allow a full understanding of the budget. In addition, the proposing institution may append their proposed budget in the format of their choice and without page limit. Note that by 2000, NASA is expected to be operating on the basis of full cost accounting; in the interim period, NASA Center proposals should use the accounting practices that are specified at the time proposals are due.

C.6 Forms and Certifications

The following pages contain the required *Budget Summary* form, the *Instructions for Budget Summary*, and, for reference only, copies of the three currently required *Certifications*. A reasonable facsimile of this *Budget Summary* form may be generated by the proposer for submission so long as it contains all the indicated information and lines. Note that the signature of the Authorizing Institutional Representative on the printed copy of the *Cover Page* submitted with the proposal now verifies that the proposing organization complies with these *Certifications*; therefore, these *Certifications* do not have to be independently signed and submitted as in previous OSS NRA's.

BUDGET SUMMARY

For period from _____ to _____

- Provide a complete Budget Summary for year one and separate estimated for each subsequent year.
- Enter the proposed estimated costs in Column A (Columns B & C for NASA use only).
- Provide as attachments detailed computations of all estimates in each cost category with narratives as required to fully explain each proposed cost. See *Instructions For Budget Summary* on following page for details.

	A	<u>NASA USE ONLY</u>	
		B	C
1. <u>Direct Labor</u> (salaries, wages, and fringe benefits)	_____	_____	_____
2. <u>Other Direct Costs:</u>			
a. Subcontracts	_____	_____	_____
b. Consultants	_____	_____	_____
c. Equipment	_____	_____	_____
d. Supplies	_____	_____	_____
e. Travel	_____	_____	_____
f. Other	_____	_____	_____
3. <u>Facilities and Administrative Costs</u>	_____	_____	_____
4. <u>Other Applicable Costs:</u>	_____	_____	_____
5. <u>SUBTOTAL--Estimated Costs</u>	_____	_____	_____
6. <u>Less Proposed Cost Sharing</u> (if any)	_____	_____	_____
7. <u>Carryover Funds</u> (if any)			
a. Anticipated amount : _____			
b. Amount used to reduce budget	_____	_____	_____
8. <u>Total Estimated Costs</u>	_____	_____	XXXXXXX
9. APPROVED BUDGET	XXXXXXX	XXXXXXX	_____

INSTRUCTIONS FOR BUDGET SUMMARY

1. Direct Labor (salaries, wages, and fringe benefits): Attachments should list the number and titles of personnel, amounts of time to be devoted to the grant, and rates of pay.
2. Other Direct Costs:
 - a. Subcontracts: Attachments should describe the work to be subcontracted, estimated amount, recipient (if known), and the reason for subcontracting.
 - b. Consultants: Identify consultants to be used, why they are necessary, the time they will spend on the project, and rates of pay (not to exceed the equivalent of the daily rate for Level IV of the Executive Schedule, exclusive of expenses and indirect costs).
 - c. Equipment: List separately. Explain the need for items costing more than \$5,000. Describe basis for estimated cost. General purpose equipment is not allowable as a direct cost unless specifically approved by the NASA Grant Officer. Any equipment purchase requested to be made as a direct charge under this award must include the equipment description, how it will be used in the conduct of the basic research proposed and why it cannot be purchased with indirect funds.
 - d. Supplies: Provide general categories of needed supplies, the method of acquisition, and the estimated cost.
 - e. Travel: Describe the purpose of the proposed travel in relation to the grant and provide the basis of estimate, including information on destination and number of travelers where known.
 - f. Other: Enter the total of direct costs not covered by 2a through 2e. Attach an itemized list explaining the need for each item and the basis for the estimate.
3. Facilities and Administrative (F&A) Costs: Identify F&A cost rate(s) and base(s) as approved by the cognizant Federal agency, including the effective period of the rate. Provide the name, address, and telephone number of the Federal agency official having cognizance. If unapproved rates are used, explain why, and include the computational basis for the indirect expense pool and corresponding allocation base for each rate.
4. Other Applicable Costs: Enter total explaining the need for each item.
5. Subtotal-Estimated Costs: Enter the sum of items 1 through 4.
6. Less Proposed Cost Sharing (if any): Enter any amount proposed. If cost sharing is based on specific cost items, identify each item and amount in an attachment.
7. Carryover Funds (if any): Enter the dollar amount of any funds expected to be available for carryover from the prior budget period. Identify how the funds will be used if they are not used to reduce the budget. NASA officials will decide whether to use all or part of the anticipated carryover to reduce the budget (not applicable to 2nd-year and subsequent-year budgets submitted for award of a multiple year award).
8. Total Estimated Costs: Enter the total after subtracting items 6 and 7b from item 5.

**Certification Regarding Debarment, Suspension, and Other Responsibility
Matters**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 34 CFR Part 85, Section 85.510, Participant's responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (pages 19160-19211).

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
 - (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
 - (d) Have not within three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Certification Regarding Lobbying

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000 for each such failure.

**Certification of Compliance with the NASA Regulations Pursuant to
Nondiscrimination in Federally Assisted Programs**

The (*Institution, corporation, firm, or other organization on whose behalf this assurance is signed, hereinafter called "Applicant "*) hereby agrees that it will comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352), Title IX of the Education Amendments of 1962 (20 U.S.C. 1680 et seq.), Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and the Age Discrimination Act of 1975 (42 U.S.C. 16101 et seq.), and all requirements imposed by or pursuant to the Regulation of the National Aeronautics and Space Administration (14 CFR Part 1250) (hereinafter called "NASA") issued pursuant to these laws, to the end that in accordance with these laws and regulations, no person in the United States shall, on the basis of race, color, national origin, sex, handicapped condition, or age be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Applicant receives federal financial assistance from NASA; and hereby give assurance that it will immediately take any measure necessary to effectuate this agreement.

If any real property or structure thereon is provided or improved with the aid of federal financial assistance extended to the Applicant by NASA, this assurance shall obligate the Applicant, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the federal financial assistance is extended or for another purpose involving the provision of similar services or benefits. If any personal property is so provided, this assurance shall obligate the Applicant for the period during which the federal financial assistance is extended to it by NASA.

This assurance is given in consideration of and for the purpose of obtaining any and all federal grants, loans, contracts, property, discounts, or other federal financial assistance extended after the date hereof to the Applicant by NASA, including installment payments after such date on account of applications for federal financial assistance which were approved before such date. The Applicant recognized and agrees that such federal financial assistance will be extended in reliance on the representations and agreements made in this assurance, and that the United States shall have the right to seek judicial enforcement of this assurance. This assurance is binding on the Applicant, its successors, transferees, and assignees, and the person or persons whose signatures appear below are authorized to sign on behalf of the Applicant.

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